

REMARKS/ARGUMENTS

The present Amendment is in response to the Office Action having a mailing date of June 15, 2005. Claims 1-21, 23, and 24 are pending in the present Application.

In the above-identified Office Action, the Examiner rejected claims 1, 11, 12, 15, 16, 19, 20, 21, 23, and 24 under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 6,009,374 (Urahashi) in view of Applicant's Background of the Invention (AAPA), in further view of U.S. Patent No. 6,442,467 (Schuler). The Examiner also rejected claims 3, 5-10, and 13 under 35 U.S.C. § 103 as being unpatentable over Urahashi in view of U.S. Patent No. 6,098,005 (Tsukamoto).

In the above-identified Office Action, the Examiner rejected claims 1, 11, 12, 15, 16, 19, 20, 21, 23, and 24 under 35 U.S.C. § 103 as being obvious in light of Urahashi in view of AAPA in further view of Schuler. In so doing, the Examiner stated "Urahashi does not teach determining the performance of the transmission when a particular load on the automatic transmission system increases by a particular amount within a particular time. However, Shuler [sic] teaches it in column 1, lines 22-30."

Applicant respectfully disagrees with the Examiner's rejection of claims 1, 11, 15, 16, 19, and 20. Applicant also respectfully disagrees with the Examiner's rejection of claims 12, 23, and 24.

With respect to claims 1 and 11, claim 1 recites:

1. A method for controlling an automatic transmission comprising the steps of:
 - (a) obtaining positioning data using a global positioning satellite (GPS);
 - (b) monitoring the automatic transmission to obtain transmission data;
 - (c) learning whether performance of the automatic transmission is improvable utilizing the positioning data and the transmission data;

wherein step (c) determines that the performance of the automatic transmission is improvable when a particular load on the automatic transmission system increases by a particular amount within a particular time;

(d) adjusting a shift threshold for the automatic transmission for the positioning data if step (c) determines that the performance of the automatic transmission is improvable and if the positioning data can be obtained using the GPS, and setting the shift threshold to a preset shift threshold if the positioning data cannot be obtained using the GPS.

Similarly, claim 11 recites:

11. A system for controlling an automatic transmission comprising:
a global positioning satellite (GPS) subsystem for obtaining positioning data using a GPS satellite;

a transmission subsystem coupled to the transmission and the GPS subsystem for monitoring the automatic transmission to obtain transmission data, for learning whether performance of the automatic transmission is improvable utilizing the positioning data and the transmission data and for adjusting a shift threshold for the automatic transmission for the positioning data if the transmission subsystem determines that the performance of the automatic transmission is improvable; and

wherein the automatic transmission includes a preset shift threshold and wherein if the GPS subsystem is off, the transmission subsystem sets the shift threshold to the preset shift threshold;

wherein the automatic transmission subsystem determines that the performance of the automatic transmission is improvable when a particular load on the automatic transmission system increases by a particular amount within a particular time.

Thus, the method and system recited in claims 1 and 11 determine, based at least in part on GPS data, whether performance of the automatic transmission is improvable. Furthermore, one specific criterion used to determine the improvability of performance is whether a load on the automatic transmission system increases by a certain amount within a certain amount of time. In response, the shift threshold (the load at which the transmission automatically shifts the gear) may be adjusted. Thus, the performance of the system is improved and shifting may be smoother, gas mileage improved, and wear and tear on the automatic transmission reduced. Specification, page 7, lines 10-13.

Urahashi in view of AAPA in view of Schuler fail to teach or suggest the method and system recited in claims 1 and 11. In particular, Urahashi in view of AAPA in view of Schuler fail to teach or suggest determining that the performance of the automatic transmission is improvable when a particular load on the automatic transmission system increases by a particular amount within a particular time.

As discussed previously, neither Urahashi nor AAPA describe determining that the performance of the automatic transmission is improvable when a particular load on the automatic transmission system increases by a particular amount within a particular time. Schuler fails to remedy these defects of Urahashi and the AAPA. The cited portions of Urahashi fail to teach or suggest a method or system for controlling an automatic transmission that uses a change in a load in a particular time in order to determine whether performance can be improved and controlling the shift thresholds of the automatic transmission based upon this determination. Urahashi does describe a performance improvement that is based changing a gear *value* based upon upcoming altitude changes. Urahashi, cols. 10 and 11. For an uphill or downhill slope, Urahashi determines the altitude change and the current gear value. Urahashi, col. 10, lines 33-35 and 41-42. If the current gear is deemed unsuitable, then the system of Urahashi changes the gear value to one that is appropriate to the slope, or grade, being traversed. Urahashi, col. 10, lines 42-47. Applicant has found no mention in the cited portions of Urahashi of determining the suitability of a gear, or whether the performance of the automatic transmission could be improved, based upon a *change in a load* on the automatic transmission. The cited portions of Urahashi are devoid of mention of determining whether the performance could be improved based upon whether the change in the load occurs for a particular time. Instead, a particular geographic condition is used. Moreover, Urahashi controls the actual gear, rather than the threshold used by the automatic transmission in

shifting gears. Thus, in contrast to the method and system recited in claims 1 and 11, respectively, Urahashi fails to determine whether an adjustment is necessary based upon a change in load for a particular time and fails to adjust a shift threshold instead of a gear value. Consequently, Urahashi fails to teach or suggest the method and system recited in claims 1 and 11.

The cited portion of the AAPA also fails to teach adjusting a shift threshold for the automatic transmission for positioning data if it is determined that the performance is improved by such a shift or adjusting. Further, in contrast to the Examiner's assertion, the AAPA fails to teach or suggest adjusting the shift threshold for positioning data if it is determined that the performance of the automatic transmission would be improved. Instead, page 2 of the specification (and the Background of the Invention, i.e. the cited portion of the AAPA) describes changing the shift threshold when approaching some *preset geographic body*. Specification, page 2, lines 10-20. Thus, the AAPA describes always changing the shift threshold when some *preset* type of geographic body, such as an intersection or stretch of road, is reached regardless of whether performance is improved and regardless of whether the load is changed for a particular amount of time. Thus, the AAPA is similar to Urahashi in that the AAPA adjusts the shift threshold based upon an upcoming geographic body.

The cited portion of Schuler describes a delay in the completion of a shift operation once a shift is requested by depressing an accelerator pedal. This portion of Schuler does not describe determining whether an adjustment is necessary based upon a change in load for a particular time and fails to adjust a shift threshold instead of a gear value. In particular, the cited portion of Schuler states:

The basic problem of an automatic transmission consists in that after triggering the gear shift a certain period of time elapses until the change of ratio. This period of time is needed, in electrohydraulically controlled

transmissions, for filling a clutch to be engaged and/or for lowering the pressure level of a disengaging clutch. Particularly, when the driver quickly increases the load and expects a downshift, this time period is disturbing, since the transmission noticeably reacts only with a delay.

Schuler, col.1, lines 14-22. Thus, this cited portion of Schuler teaches that at least for electrohydraulically controlled transmissions, a delay exists between the triggering of the shift and actually shifting the transmission. This portion of Schuler, therefore, does not determine a load change for the transmission for a particular time and change thresholds based on this load change. Portions of Schuler teach triggering a shift when the gradient of the accelerator reaches a particular threshold. Schuler, col. 1, lines 4-53. Stated differently, these portions of Schuler teach that the speed with which the accelerator pedal is depressed is used to trigger a shift. Consequently, the remaining portions of Schuler also fail to teach or suggest determining a load change for the transmission for a particular time and changing shift thresholds based on this load change.

Because the cited portions of Urahashi, Schuler, and AAPA fail to mention determining whether a load on the automatic transmission system increases by a certain amount within a certain amount of time in conjunction with adjusting the shift threshold when the load on the automatic transmission increases by a certain amount within a certain amount of time, the combination fails to teach or suggest these features. First, Applicant respectfully submits that because Urahashi, like the AAPA, accounts for certain obstacles, such as geographic bodies, Urahashi has already incorporated the teachings of the AAPA. Even assuming, *arguendo*, that the AAPA in combination with Urahashi would adjust a shift threshold, to which Applicant disagrees, the combination would not do so based upon a load lasting for a particular period of time. Instead, such a change would occur based upon an upcoming geographic body. If the teachings of the cited portions of Schuler, AAPA, and Urahashi were combined, the problem described by Schuler (shift delays) might be

known to Urahashi and the AAPA. In order to solve this problem, the gradient of the accelerator pedal of Schuler, described above, might be combined with the teachings of the cited portion of Urahashi and the AAPA. Such a combination might also change the gear value earlier based upon a depression of the accelerator. However, the combination would still not adjust the shift threshold based upon the load increasing by a certain amount within a certain amount of time. Thus, Urahashi in view of AAPA in further view of Schuler also fails to teach or suggest the method and system recited in claims 1 and 11. Accordingly, Applicant respectfully submits that claims 1 and 11 are allowable over the cited references.

Claims 15, 16, 19, 20, and 21 depend upon independent claim 11. Consequently, the arguments herein apply with full force to claims 15, 16, 19, 20, and 21. Accordingly, Applicant respectfully submits that claims 15, 16, 19, 20, and 21 are allowable over the cited references.

Applicant also respectfully disagrees with the Examiner's rejection of claim 12 as being unpatentable over Urahashi in view of AAPA and Schuler. Claim 12 recites:

12. A system for controlling an automatic transmission comprising:
a global positioning satellite (GPS) subsystem for obtaining positioning data using a GPS satellite;
a transmission subsystem coupled to the transmission and the GPS subsystem for monitoring the automatic transmission to obtain transmission data, for learning whether performance of the automatic transmission is improvable utilizing the positioning data and the transmission data and for adjusting a shift threshold for the automatic transmission for the positioning data the transmission subsystem determines that the performance of the automatic transmission is improvable; and
wherein the transmission subsystem further determines whether a one-time event has occurred and ensures that the automatic transmission is at a factory setting if the one-time event has occurred.

Thus, the system in claim 12 not only adjusts the shift threshold for improved performance, but is also capable of accounting for one-time events. For example, the system recited in claim 12

might account for unusually light or heavy loads, a trailer being towed, or strong head or tail winds that may adversely affect performance of the vehicle. Specification, page 8, lines 5-11. Thus, even upon the occurrence of a one-time event, the system in claim 12 can improve the performance of the automatic transmission.

In contrast, the cited portion of Urahashi fails to teach or suggest a system, which accounts for one-time effects. The cited portions of Urahashi are also devoid of mention of the desirability of possibility of one-time effects, such as winds, loads, or trailers being towed, being accounted for in any manner. Moreover, as described above, Urahashi adjust a gear value, rather than the shift threshold. Thus, Urahashi fails to teach or suggest the system recited in claim 12.

The AAPA is likewise devoid of mention of a mechanism for accounting for such one-time effects. The cited portions of Schuler fail to remedy the defects of Urahashi and the AAPA. As described above, the cited portions of Schuler merely state a problem relating to shift delays. The cited portion of Schuler is also devoid of mention of one-time effects, such as winds, loads, or trailers being towed. Consequently, any combination of Urahashi, the AAPA, and Schuler would fail to teach or suggest this feature. Instead, as described above, the combination of the cited portions of Urahashi, the AAPA and the use of the gradient of the accelerator pedal depression in Schuler might simply perform a shift earlier when a driver sees an upcoming geographic body and depresses the accelerator. Consequently, the combination of Urahashi, the AAPA, and Schuler fail to teach or suggest the method recited in claim 12. Accordingly, Applicant respectfully submits that claim 12 is allowable over the cited references.

The Examiner did not explicitly state the reasons for rejection claim 2. However, claim 2 recites:

2. A method for controlling an automatic transmission comprising the steps of:
- (a) obtaining positioning data using a global positioning satellite (GPS);
 - (b) monitoring the automatic transmission to obtain transmission data;
 - (c) learning whether performance of the automatic transmission is improvable utilizing the positioning data and the transmission data;
 - (d) adjusting a shift threshold for the automatic transmission for the positioning data if step (c) determines that the performance of the automatic transmission is improvable;
 - (e) determining whether a one-time event has occurred; and
 - (f) ensuring that the automatic transmission is at a factory setting if the one-time event has occurred.

Thus, claim 2 recites a method for controlling an automatic transmission that is analogous to the system of claim 12. Thus, the reasoning above with respect to claim 12 applies with full force to claim 2. Accordingly, Applicant respectfully submits that claim 2 is allowable over the cited references.

Applicant also respectfully disagrees with the Examiner's rejection of claims 23-24. Claim 23 recites:

23. A method for controlling an automatic transmission comprising the steps of:
- (a) obtaining positioning data using a global positioning satellite (GPS);
 - (b) monitoring the automatic transmission to obtain transmission data;
 - (c) learning whether performance of the automatic transmission is improvable utilizing the positioning data and the transmission data, the performance of the automatic transmission being improved by a shift threshold adjustment if the automatic transmission performs an unnecessary shift, the unnecessary shift being a shift that occurs for less than or equal to a particular amount of time; and
 - (d) adjusting a shift threshold for the automatic transmission for the positioning data if step (c) determines that the performance of the automatic transmission is improvable.

Claim 24 recites:

24. A system for controlling an automatic transmission comprising:

a global positioning satellite (GPS) subsystem for obtaining positioning data using a GPS satellite;

a transmission subsystem coupled to the transmission and the GPS subsystem for monitoring the automatic transmission to obtain transmission data, for learning whether performance of the automatic transmission is improvable utilizing the positioning data and the transmission data, the performance of the automatic transmission being improved by a shift threshold adjustment if the automatic transmission performs an unnecessary shift, the unnecessary shift being a shift that occurs for less than or equal to a particular amount of time, and for adjusting a shift threshold for the automatic transmission for the positioning data if the performance of the automatic transmission can be improved.

Thus, claims 23 and 24 recite a method and system, respectively, which determine that the performance is improvable if an unnecessary shift has occurred. In claims 23-24, an unnecessary shift is defined as a shift that occurs for less than or equal to a particular amount of time. Thus, unnecessary shifts may be reduced or avoided, thereby improving performance.

In contrast, Applicant can find no mention the cited portions of Urahashi of determining whether there is an unnecessary shift. Moreover, the cited portions of Urahashi do not indicate that the performance of an unnecessary shift, as defined as a shift for less than a particular period of time, might be used to improve performance. Furthermore, as discussed above, Urahashi describes changing the gear value, not the shift threshold. Consequently, Urahashi does not teach or suggest the method and system recited in claims 23 and 24.

The cited portion of AAPA fails to remedy the defects of Urahashi. As discussed above, the cited portion of AAPA shifts the shift threshold based upon an upcoming geographic body. However, the cited portion of AAPA still does not describe determining that performance is improvable when an unnecessary shift of less than or equal to a particular amount of time has occurred. Thus, any combination of Urahashi and the AAPA would also fail to teach or suggest this feature.

The cited portion of Schuler also fails to remedy the defects of Urahashi in view of AAPA. As discussed above, the cited portion of Schuler describes a delay in the actual shift presumably due to the use of electrohydraulically controlled transmissions. The shift based upon the gradient of the depression of the acceleration pedal in Schuler could be used to shift the transmission early. However, the cited portion of Schuler still does not describe determining that performance is improvable when an unnecessary shift of less than or equal to a particular amount of time has occurred. Thus, any combination of Urahashi, AAPA, and Schuler would also fail to teach or suggest this feature. Accordingly, Applicant respectfully submits that claims 23-24 are allowable over the cited references.

The Examiner did not explicitly state the reasons for rejecting claim 4. Claim 4 recites:

4. A method for controlling an automatic transmission comprising the steps of:
 - (a) obtaining positioning data using a global positioning satellite (GPS);
 - (b) monitoring the automatic transmission to obtain transmission data;
 - (c) learning whether performance of the automatic transmission is improvable utilizing the positioning data and the transmission data, the learning step (c) further including the step of
 - (c1) determining that the performance is improvable if the automatic transmission performs an unnecessary shift a particular number of times, the unnecessary shift being a shift that occurs for less than or equal to a particular amount of time; and
 - (d) adjusting a shift threshold for the automatic transmission for the positioning data if step (c) determines that the performance of the automatic transmission is improvable.

Claim 4 is thus analogous to claims 23-24. Consequently, the arguments herein apply with full force to claims 23-24. Accordingly, Applicant respectfully submits claim 4 is allowable over the cited references.

The Examiner also rejected claims 3, 5-10, and 13 under 35 U.S.C. § 103 as being unpatentable over Urahashi in view of Tsukamoto.

Claims 3 and 5-10 depend upon independent claim 1. Claim 13 depends upon independent claim 11. Consequently, the discussion herein with respect to Urahashi applies with full force to claims 3, 5-10, and 13. In particular, Urahashi fails to teach or suggest controlling an automatic transmission using a change in a load in a particular time to determine whether performance can be improved and controlling the automatic transmission based upon this determination. Moreover, as the Examiner has acknowledged, Urahashi does not teach how to determine whether a driving conditions exists and to determine a desired threshold for the automatic transmission base on the driving condition.

Even if it is assumed that Tsukamoto teaches the features cited by the Examiner, Tsukamoto fails to remedy the defects of Urahashi. In particular, the cited portion of Tsukamoto fails to teach or suggest controlling an automatic transmission using a change in a load in a particular time to determine whether performance can be improved and controlling the automatic transmission based upon this determination. Consequently, any combination of Urahashi and Tsukamoto also fails to teach or suggest the method and system recited in claims 3, 5-10, and 13.

Further, Tsukamoto describes utilizing the vehicle's surroundings to adjust the vehicle's gears. However, Urahashi also uses the vehicle's surroundings. Consequently, a combination of Urahashi and Tsukamoto might use the terrain near the vehicle to adjust gear values. However, because both Tsukamoto and Urahashi fail to describe determining that the performance of the automatic transmission is improvable when a particular load on the automatic transmission system increases by a particular amount within a particular time, the combination would also fail to teach or suggest this feature. As a result, Urahashi in view of Tsukamoto fails to teach or

suggest the methods and system recited in claims 3, 5-10 and 13. Accordingly, Appellant respectfully submits that claims 3, 5-10, and 13 are allowable over the cited references.

Applicant's attorney believes that this application is in condition for allowance. Should any unresolved issues remain, Examiner is invited to call Applicant's attorney at the telephone number indicated below.

Respectfully submitted,
SAWYER LAW GROUP LLP

September 15, 2005
Date

/Janyce R. Mitchell/ Reg. No. 40,095
Janyce R. Mitchell
Attorney for Applicant(s)
(650) 493-4540